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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,370	07/14/2004	Thierry Coleou	Cabinet -02	7593

62713 7590 05/28/2008
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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

MAIL DATE	DELIVERY MODE
05/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,370	COLEOU, THIERRY	
	Examiner	**Art Unit**	
	TOAN M. LE	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 February 2008_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-15_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-15_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _14 July 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by "Kriging Analysis of Geochemical Data", Sandjivy [(referred hereafter Sandjivy); The English translation version; the original French version is provided by Applicant].

Referring to claim 1, Sandjivy discloses a method of filtering at least two series of seismic data representative of the same zone, the method being characterized by determining an estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate, the resoluation of the data series being used for determining the topography of the subsoil (pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible 'pairs' of points in the measurement data set; thus, "Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain 'frequency bands' which were identified with the help of their spatial covariance during structural analysis; the geostatistics filtering method has several advantages." on page 4, lines 11-14; pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **<u>functions</u>** similar to Z1 and Z2 in the <u>application disclosure</u> on paragraphs [0034], [0035], [0036]; pages 9-10, D- Application example section describing

small-range spherical effect, wide-range spherical effect for the study anamorphic Pb, Zn, and Cu data; pages 12-14, 2- Presentation of the results section citing 'Thus we observe for each element filtering of the regional component (equivalent to the low frequencies) and of the local component (equivalent to the high frequencies). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures." (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil; pages 14-15, 3- Study of the results section describing maps/cartography for the Cu, Pb, and Zn values).

As to claim 2, Sandjivy discloses a method according to claim 1, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 3-5, B- Naturalist presentation section describing co-Kriging for the various components of Y_u with co-Kriging weight on page 5 last line to page 6, line 1. Note: co-Kriging is similar to Kriging except it uses two correlated measured values to compensate for missing values by utilizing secondary variable data known in the art as co-variate data; pages 5-8, C-Theory section describing deducing an estimate of the component that is common to the data series $Y_u(x)$).

Referring to claim 3, Sandjivy discloses a method according to claim 2, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., "residue C"; "For estimating

the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

As to claim 4, Sandjivy discloses a method according to claim 3, characterized by implementing kriging analysis to resolve said orthogonal residues (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., “residue C”; “For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

Referring to claim 5, Sandjivy discloses a method of processing seismic data, comprising: comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained for two distinct values of at least one given parameter, said comparing including filtering at least two series of seismic data representative of the same zone by determining an estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate (pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible ‘pairs’ of points in the measurement data set; thus, “Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain ‘frequency bands’ which were identified with the help of their spatial covariance during structural analysis; the geostatistics filtering method has several advantages.” on page 4, lines 11-14; pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036]; pages 9-10, D- Application example section describing small-range spherical effect, wide-range spherical effect for the

study anamorphic Pb, Zn, and Cu data; pages 12-14, 2- Presentation of the results section citing 'Thus we observe for each element filtering of the regional component (equivalent to the low frequencies) and of the local component (equivalent to the high frequencies). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures." (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil; pages 14-15, 3- Study of the results section describing maps/cartography for the Cu, Pb, and Zn values).

As to claim 6, Sandjivy discloses a method of filtering at least one series of seismic data representative of at least one zone, the method being characterized by identifying a model of a component of three-dimensional variability of its variogram, subtracting said model from the experimental variogram, and solving the kriging equation corresponding to the different variograms in order to deduce an estimate of the corresponding variability component on the data series (pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible 'pairs' of points in the measurement data set; thus, "Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain 'frequency bands' which were identified with the help of their spatial covariance during structural analysis; the geostatistics filtering method has several advantages." on page 4, lines 11-14; pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036]; pages 9-10, D- Application example section describing small-range spherical effect, wide-range spherical effect for the study anamorphic Pb, Zn, and Cu data;

pages 12-14, 2- Presentation of the results section citing ‘Thus we observe for each element filtering of the regional component (equivalent to the low frequencies) and of the local component (equivalent to the high frequencies). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures.” (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil; pages 14-15, 3- Study of the results section describing maps/cartography for the Cu, Pb, and Zn values).

Referring to claim 7, Sandjivy discloses a method of processing seismic data, comprising: comparing two series of seismic data corresponding, for the same zone, to grids of at least one common attribute obtained at two different instants, said comparing including filtering at least two series of seismic data representative of the same zone by determining an estimate of the component that is common to the data series, and deducing a resolution of these data series from the estimate (pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible ‘pairs’ of points in the measurement data set; thus, “Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain ‘frequency bands’ which were identified with the help of their spatial covariance during structural analysis; the geostatistics filtering method has several advantages.” on page 4, lines 11-14; pages 5-9, Theory section describing the break down of $Z(x)$ into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036]; pages 9-10, D- Application example section describing small-range spherical effect, wide-range spherical effect for the study anamorphic Pb, Zn, and

Cu data; pages 12-14, 2- Presentation of the results section citing ‘Thus we observe for <u>each element filtering</u> of the regional component (equivalent to the <u>low frequencies</u>) and of the local component (equivalent to the <u>high frequencies</u>). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures.” (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil; pages 14-15, 3- Study of the results section describing maps/cartography for the Cu, Pb, and Zn values).

As to claim 8, Sandjivy discloses a method according to claim 1, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., “residue C”; “For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

Referring to claim 9, Sandjivy discloses a method according to claim 8, characterized by implementing kriging analysis to resolve said orthogonal residues (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., “residue C”; “For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

As to claim 10, Sandjivy discloses a method according to claim 5, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 3-5, B- Naturalist presentation section describing co-Kriging for the various

components of Y_u with co-Kriging weight on page 5 last line to page 6, line 1. Note: co-Kriging is similar to Kriging except it uses two correlated measured values to compensate for missing values by utilizing secondary variable data known in the art as co-variate data; pages 5-8, C- Theory section describing deducing an estimate of the component that is common to the data series $Y_u(x)$).

Referring to claim 11, Sandjivy discloses a method according to claim 5, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., "residue C"; "For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…" on page 7, line 12).

As to claim 12, Sandjivy discloses a method according to claim 11, characterized by implementing kriging analysis to resolve said orthogonal residues (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., "residue C"; "For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…" on page 7, line 12).

Referring to claim 13, Sandjivy discloses a method according to claim 7, characterized by determining a cross variogram of these data series and solving the co-kriging equation, which results in automatically deducing an estimate of the component that is common to the data series (pages 3-5, B- Naturalist presentation section describing co-Kriging for the various components of Y_u with co-Kriging weight on page 5 last line to page 6, line 1. Note: co-Kriging is similar to Kriging except it uses two correlated measured values to compensate for missing

values by utilizing secondary variable data known in the art as co-variate data; pages 5-8, C-Theory section describing deducing an estimate of the component that is common to the data series $Y_u(x)$).

As to claim 14, Sandjivy discloses a method according to claim 7, characterized by determining the orthogonal residues for the various data series by subtracting the estimated common component from each of the data series (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., “residue C”; “For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

Referring to claim 15, Sandjivy discloses a method according to claim 14, characterized by implementing kriging analysis to resolve said orthogonal residues (page 7, lines 9-18; page 8, lines 1-14 describing the orthogonal residues of the various data series, e.g., “residue C”; “For estimating the $Y_u(x)$, one proceeds by co-Kriging of the residues associated with each of them,…” on page 7, line 12).

Response to Arguments

Applicant's arguments filed 2/26/08 have been fully considered but they are not persuasive.

Referring to claims 1-15, Applicant argues:

a. Sandjivy does not disclose a method of filtering at least two series of seismic data representative of the same zone. On the contrary, Sandjivy describes a method of processing only one series of seismic data Z_α.

Answer: pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible 'pairs' of points in the measurement data set; thus, "Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain 'frequency bands' which were identified with the help of their spatial covariance during structural analysis; the geostatistics filtering method has several advantages." on page 4, lines 11-14; pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036], e.g., Y_u (x), Y_v (x+h) on page 5 in the reference in comparison with Z1(x), Z1(x+h), Z2(x), Z2(x+h) in the application disclosure.

Thus, Sandjivy does disclose filtering method for at least two series of seismic data representative of the same zone.

b. Sandjivy does not describe determining an estimate of the component that is common to the data series. On the contrary, in Sandjivy, the estimate Z^* of equation (a) is an estimate of Z_α (and not an estimator of Z1 and Z2), where Z_α corresponds to the experimental values, i.e., experimental data of a sole seismic data series.

Answer: Sandjivy discloses pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036], e.g., Y_u (x), Y_v (x+h) on page 5 in the reference in comparison with Z1(x), Z1(x+h), Z2(x), Z2(x+h) in

the application disclosure; pages 9-10, D- Application example section describing small-range spherical effect, wide-range spherical effect for the study anamorphic Pb, Zn, and Cu data.

Thus, Sandjivy does disclose an estimate of the component that is common to the data series by breaking down of $Z(x)$ into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure.

c. Sandjivy does not describe deducing a resolution of the data series from the estimate.

Answer: Sandjivy discloses pages 12-14, 2- Presentation of the results section citing 'Thus we observe for each element filtering of the regional component (equivalent to the low frequencies) and of the local component (equivalent to the high frequencies). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures." (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil, E.g., Figures on pages 19-21 show resolution for LEAD and SPHERICAL LEAD; Figures on pages 22-24 showing resolution for ZINC and SHERICAL ZINC; Figures on pages 25-27 show resolution for COPPER and SPHERICAL COPPER.

In Summary:

Pages 3-5, B- Naturalist presentation section describing geostatistical method, e.g., Kriging, uses variogram represented spatial and data differences between some or all possible 'pairs' of points in the measurement data set; thus, "Kriging analysis allows breaking down the cartography of a regional variable, that is filtering certain 'frequency bands' which were identified with the help of their spatial covariance during structural analysis; the geostatistics

filtering method has several advantages." on page 4, lines 11-14; pages 5-9, Theory section describing the break down of Z(x) into $Y_u(x)$ which are themselves mutually orthogonal order 2 stationary random **functions** similar to Z1 and Z2 in the application disclosure on paragraphs [0034], [0035], [0036]; pages 9-10, D- Application example section describing small-range spherical effect, wide-range spherical effect for the study anamorphic Pb, Zn, and Cu data; pages 12-14, 2- Presentation of the results section citing 'Thus we observe for each element filtering of the regional component (equivalent to the low frequencies) and of the local component (equivalent to the high frequencies). We may consider that we obtain thereby a map of the geochemical regional base and another of the local structures." (page 14, lines 1-4) for deducing a resolution of the seismic data series and the resolution of these data series used for determining the topography of the subsoil; pages 14-15, 3- Study of the results section describing maps/cartography for the Cu, Pb, and Zn values.

Thus, Sandjivy does disclose those limitations as argues above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOAN M. LE whose telephone number is (571)272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Toan Le

/Michael P. Nghiem/
Primary Examiner, GAU 2863

May 21, 2008